
Tradition and the Federation*

By Ivan L. Bennett, Jr.

AMONG THE RELATIVELY FEW TRADITIONS that have arisen in this relatively young organization, the American Federation for Clinical Research, is that of the presidential address. Most of you have heard past presidents of this or one of the so-called senior societies that meet here during the next few days deliver themselves of the orations expected of them.

Almost as traditional as the presidential address itself has come to be the subject-matter of these dissertations: the financing of research or of medical education; the goods and/or evils of team research; how to write, to read, to deliver, or to listen to a scientific paper; an allegorical representation of clinical research as the ocean tides, the bone marrow, the Krebs cycle, the pituitary-adrenal axis, a culture of bacteria, the clotting mechanism, etc.; why these meetings should or should not be held in Atlantic City every year; the pros and cons of specialty boards; government control of research and researchers; the hard lot of a departmental chairman; a comparison of the first scientific program of the society with today's program, with remarks on the rise of science in medicine; and, of course, periodic reviews of past presidential addresses.

The general meeting of the Federation today has been abbreviated to a single morning session to make way for a series of smaller meetings during the afternoon. I would prefer, therefore, not to take time for the delivery of a presidential address and to go on to the scientific program. However, to fulfill tradition and to satisfy those among you who might feel that you had been deprived of something that is your due, I propose to say a few words about tradition and the American Federation for Clinical Research.

The truth of the truism that there has been a great increase in clinical research in recent

years is perhaps nowhere more evident than in the continuing hypertrophy of attendance and hyperplasia of abstracts submitted at these annual meetings in Atlantic City. Not all of these abstracts are necessarily *good*, but few are really *poor* and many are *excellent*. The traditional form of the meetings here, which the Federation has adopted from its older brothers, calls for the president of each society to choose a few papers for presentation as presumably the "best."

As quantity and quality of papers have increased, this has become an anachronistic, impossible task. The almost traditional practice of the president's enlisting the advice of a committee of anonymous specialists to share credit or blame for the program does not meet the basic problem. Indeed, it has come to be traditional for each president to absolve his committee of all blame by announcing manfully that his and his alone is the full responsibility for the final selections, and it is doubtful that the nameless advisors serve any purpose at all save that of fulfilling tradition.

I do not intend to deny the right of our "senior" societies to select their programs and to conduct their meetings in any way that they wish. It is important, however, to point out that to cling to a system that results each year in a greater disparity between papers submitted and papers presented works to the detriment of the Federation and its purposes. The purpose of our society is somewhat different from that of the American Society for Clinical Investigation and the Association of American Physicians. This organization is intended to help young investigators by furnishing a forum where they can present their work and discuss it with their peers. We are not an exclusive group, there is no numerical limit upon our size, and membership is not intended as an honor or recognition of past accomplishment. The presentation of a paper before the Federation should benefit not only the listener but also the essayist.

*Presidential address, read in part before the National Meeting of the American Federation for Clinical Research, Atlantic City, New Jersey, May 4, 1938.

When the very purpose for which the Federation exists is threatened by a tradition that was taken over or handed down from other societies with differing aims, it behooves us to contemplate the possibility of a change or, if you prefer, to think about establishing a *new* tradition. A beginning step in this direction was the institution three years ago of informal, evening sessions at this annual meeting to enable what might best be termed "special interest groups" to meet under the aegis of the Federation.

Along with the *increase* in attendance and the *increase* in papers submitted for these programs, there have been certain *decreases*. I will mention two of these which are, perhaps, related.

First is the decrease in the percentage of the audience at any given session of any given society who thoroughly understand any given paper. Indeed, many of us, if we would admit it, are coming to judge papers here more by the excellence of the presentation and illustrations than by content. It matters less and less *what* a man says and more and more *how* he says it. This mildly exaggerated characterization is in no way intended to belittle the importance of the principles of good public speaking and the artistic construction of lantern slides.

This first *decrease* is one of the reasons that the Society for Clinical Investigation and the Federation for Clinical Research have this year joined forces in an effort to modify the structure of these meetings—to bend tradition without breaking it. The sectional meetings to be held this afternoon and evening are intended to allow *more* investigators to present their work to *fewer* people, but a *more* interested audience.

The second *decrease* evident at these meetings is a more important one. I refer now to the fact that discussion of papers from the floor, comments, questions, and critical exchange seem well on their way to extinction. This has been generally attributed to the simple *law of mass inaction*. The average person, it is said, is reluctant to delay a large meeting with his comments, is shy about expressing his opinion before the multitude. It is this fear of the whispered comment, "Who the hell does he think *he* is?" or "What's he tryin' to do, give another paper?" that inhibits many who, before a smaller audience of individuals known to have some direct in-

terest in the subject at hand, might unhesitatingly rise to offer comments and additional information.

It is in the unproved hope that the atrophy of discussion at these meetings during the past few years is attributable in the main to the shyness of our members in the presence of a crowd that the joint sessions of this afternoon were planned.

I would conclude these remarks by pointing out that the apparent correlation between *increasing* attendance and *decreasing* discussion during the past few years may not signify a causal relationship. The point that I wish to make is so well expressed in a recent discussion of the general subject of criticism in medicine and the biological sciences by William Bennett Bean¹ that I can do no better than to quote his words, slightly rearranged and wholly out of context:

Why has criticism so languished in science and in medicine? In this country, reticence may stem from the vague but potent belief that criticism is not sporting, that it smacks of the extravagant capers of "oneupsmanship." There is a feeling that we attack a person if we criticize his error... criticism may be delivered in an effective way which cuts with small pain. It can have a result which is constructive if it leads to the correction of error, the improvement of technique, and the debridement of those necrotic evils of obscure style, sterile speculation, and discord between evidence and conclusion which so beset us... The recipient of criticism does not have to believe that we think him a fool or villain because we disagree with what he has said or have detected errors in his work. In a free exchange not embittered by personality clashes, it may be that the critic himself is wrong. This should deepen his learning and his humility, but must not silence him.

It may then require more than a rearrangement of the form of these meetings to renew the worthwhile tradition of critical comment and profitable exchange that was formerly the hallmark, indeed, the *main purpose* of these spring gatherings by the sea.

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Cancer Research: a Critique and Some Suggestions

By Solomon Garb*

ALTHOUGH there are many aspects of cancer research, it appears from the published reports that a large proportion of the total effort is devoted to various screening procedures. It may now be time to examine critically the philosophy and practice of some of these procedures.

In many, if not most, screening tests, the mesh is arranged to hold those compounds which inhibit the growth of (or in some way damage) young, rapidly multiplying cells, while allowing to pass through into the discard those compounds which have no selectivity for the rapid multiplier. This approach is based on the widely held belief that cancer cells multiply wildly and at rates which substantially exceed those found in normal cells. Upon reflection, however, it should be clear that cancer cells do not multiply at unusually rapid rates in comparison with other cells. Several examples present themselves and others can probably be added.

The bone marrow cells' rate of multiplication can be calculated on the basis of the rate of replacement of red blood cells. Since there are normally 5,000,000 cells per cubic millimeter of blood and 5 liters of blood in the body, there are about 25,000,000,000,000 red blood cells, with a life span of about 120 days each. Since the rate of formation ordinarily equals the rate of destruction, it can be calculated that the bone marrow cells usually produce 2,500,000 red blood cells *per second*. After hemorrhage, the rate rises several-fold. Looked at another way, we find that in one year the bone marrow cells normally produce almost 20 pounds of red cells. Surely, there are very few, if any, cancers which at the end of a year weigh anything like 20 pounds.

The epithelial cells lining the gut multiply at rates equivalent to or greater than that of the bone marrow, and it is a matter of common experience that the epithelial cells of the buccal mucosa multiply rapidly enough to heal a minor abrasion or denudation in a few hours.

It may be argued that it is unfair to compare the multiplication rate of one kind of normal tissue with the multiplication rate of cancer cells derived from another type of tissue. However, such a comparison is quite valid in relation to a discussion of screening procedures. If the screening is designed to pick up substances which will affect rapidly multiplying cells, it will choose materials which affect the bone marrow and cells lining the gut. Indeed, all of the substances picked up by such screening procedures thus far have been of little or no value mainly because in adequate dosage they are more toxic to the bone marrow and/or the epithelial lining of the gut than they are to the cancer.

From these considerations, it appears that the approach to cancer chemotherapy is not likely to be fruitful if based on a misconception about the nature of cancer. It may not be possible at this time to define the nature of cancer with enough accuracy to permit the application of a successful, specific screening technic. However, the cancer cell can be considered simply as a "different" cell without much chance of our being wrong. On the basis of this concept, it may prove fruitful to examine differential growth inhibitors — materials which inhibit one type of cell in nontoxic concentrations without affecting other cells. There is a good chance that one or more of such differential growth inhibitors will include in its spectrum of activity some types of cancer, while excluding the cells essential to life.

Growth inhibitors with marked differential potency for various types of cells are found in many species of plants. Described by De Candolle in 1832,¹ they received little attention for almost a century, but interest in them has revived in recent years.

These growth inhibitors are the equivalent of antibiotics. Penicillin, for example, is essentially a differential growth inhibitor released by one species of plant to prevent the growth of other species of plants (certain bacteria). The higher plants did not discard the advantages of chemical warfare enjoyed by their one-celled ancestors, but in many cases they changed the chemical agent to correspond to a change in the

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nature of potential competitors. A familiar example is the black walnut tree. Other plants cannot grow near it, presumably because of the juglone secreted by its roots.

The plant growth inhibitors thus far described by botanists show considerable differences in their spectra of activity. Some inhibit tomato and corn but not barley or oats²; another inhibits beans but not corn. Some inhibit the growth of roots³; others, stems or leaves.⁴ In most cases there is a wide margin between the growth-inhibiting concentration and the toxic concentration, suggesting a true specificity of action.⁴ In many cases, the inhibiting concentration is less than 1 per cent of the toxic concentration.⁴

At this juncture, the question arises as to why anyone should assume that a plant growth inhibitor will inhibit animal cell growth. Although an assumption of this sort may not seem justified at first, a search of the literature discloses that there is actual evidence that plant growth inhibitors do inhibit mammalian cell growth and that they may exhibit a considerable degree of specificity in terms of the type of tissue affected. To be sure, this evidence is fragmentary, but it is enough to suggest strongly that plant growth inhibitors have differential actions on animal cells. In some cases, the investigators were aware of the nature of the material under study but did not extend their studies to a variety of cancers. In other cases, the material had been isolated from plants, purified, analyzed and assigned a chemical name before it was discovered that its botanical function was growth inhibition. During the interval, other investigators had described differential growth inhibition in mammalian cells but did not report further studies. The botanists and zoologists were apparently unaware of each other's work.

Some examples of inhibition of mammalian cell growth by plant growth inhibitors may be of interest. Parasorbic acid (δ - $\Delta\alpha\beta$ -hexenolactone), found in the mountain ash and other plants, was reported by Cornman⁵ to inhibit fibroblasts but not epithelial cells in tissue culture and to inhibit the growth of the Jensen rat sarcoma. Heaton⁶ in 1929 had reported similar findings with an extract whose exact nature was apparently unknown at that time.

Holden et al.⁷ reported that protoanemonin, an inhibitor derived from *Anemone pulsatilla* or *Ranunculus*, inhibits the growth of both fowl

fibroblasts and epithelial cells in tissue culture.

Lustig and Wachtel⁸ reported on the type of chemical that was able selectively to dissolve cancer cells under certain laboratory conditions. Years later, Bonner,⁹ presumably unaware of their work, found the same substance to be the principal growth inhibitor secreted by the roots of the Guayule plant.

Gley et al.¹⁰ reported that certain coumarin derivatives caused atrophy of rat testicles but not seminal vesicles, while other derivatives had a reverse effect. Similar coumarin derivatives were shown by botanists to be the inhibitors secreted by a variety of plants.

More recently, Kraul and Schmidt¹¹ reported that an extract of Camomile retarded the growth of experimental tumors in mice. They were apparently unaware that Newald¹² had shown that a major part of the Camomile extract was a mixture of 7-methoxycoumarin and 7-hydroxycoumarin. Another name for 7-hydroxycoumarin is umbelliferone, and Hamner et al.³ have reported that umbelliferone and its related compound 8-methyl umbelliferone are selective plant growth inhibitors.

It must be emphasized that the plant growth inhibitors are concrete chemical entities. Of the 40 or so mentioned in the botanical literature, the structural formulae of about half have been elucidated and the material purified or synthesized. Indeed, we have been able to procure 16 of these materials in generous quantities and are initiating studies with them. Only one had been reported as having been tested in experimental cancer chemotherapy studies.^{13,14}

There is little chance that any material will prove effective in all types of cancer. There is already convincing evidence that many cancers differ in their metabolism from other cancers; for example, prostate carcinoma secretes acid phosphatase, while malignant melanoma secretes melanin or melanogen. It thus seems likely that a substance affecting one type of cancer would be ineffective with other types. Indeed, there is a good parallel with the antibiotics. Penicillin would never have been discovered if the original studies with it had employed *E. coli* as the test organism. For these reasons, it appears worthwhile to test potential anti-cancer materials on the widest possible spectrum of cancers.

On the basis of all the foregoing considerations, it appears that a study of the effects of plant growth inhibitors on the widest possible

variety of normal and malignant cells may be a fruitful approach to the problem of cancer.

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Change in National Office

Every three years the national office of your Federation has undergone a migration which has become increasingly painful in direct proportion to the society's growth. This is occasioned by the election of a new secretary-treasurer and the practice of locating the national office wherever he happens to be.

With the striking growth in Federation membership to almost 3,000, and with the wandering nature of its restless, active souls, one-third of whom change their address each year, the National Council has been aware of the serious administrative problems involved in their periodic dislocation. This concern was underscored with the realization that even your officers are subject to restless ways of academic medicine, and Dr. William Stead, during his recent term of office, migrated to the University of Florida School of Medicine.

The Council has, therefore, wisely explored the possibilities of a potentially permanent administrative relationship, and Dr. Albert Mendeloff, Dr. Stead, and your secretary were appointed a committee to explore the possibility of administrative assistance which might appropriately be obtained at the time of the present change in officers.

After careful investigation of several possibilities, the Federation has engaged the services of Mr. James E. Bryan and Mr. H. Randall Norris as Executive Secretary and Associate Executive Secretary for a trial contract, with the hope that this relationship may progress to a permanent administrative office for the Federation.

Mr. Bryan brings a long experience in medical administration and has served as the director of many health, welfare and civic organizations. He is on the faculty of Columbia University School of Public Health in administrative medicine and serves with such organizations as the World Medical Association and the National Medical Foundation for Eye Care.

Mr. Norris has worked with a number of county and state medical societies and brings a long experience as a consultant in medical public relations and organizational work.

We wish to formally welcome Messrs. Bryan and Norris and hope that their association in Federation work will be a pleasant one.

The physical transition of the national office will take place between July 15 and August 1,

and we apologize for any delays that may occur during the moving process. Because of the continuing guidance of Dr. William Stead and the cooperation of Miss Lila Mitchell, our experienced administrative assistant, we have high hopes that the dislocation trauma will be held to a minimum.

Effective July 15, all members are requested to address routine inquiries and communications about membership, financial and administrative matters directly to the National Office, 250 West 57th Street, New York 19, N.Y., and are invited to call directly at COLUMBUS 5-3778 if they are in the New York vicinity.

Communications about policy and professional matters may be directed, as previously, to the Secretary-Treasurer, The Department of Medicine, Georgetown University Medical Center, Washington 7, D.C., FEderal 3-2000, Ext. 634.

George E. Schreiner
Secretary-Treasurer

Section Meetings Calls for Abstracts

Midwestern Section: The Annual Meeting will be held on Thursday, October 30, 1958, at 9:00 A.M. in the auditorium of Thorne Hall, Northwestern University Medical Campus, Lake Shore Drive and Superior Street, Chicago, Illinois. Headquarters will be at the Drake Hotel. Abstracts must be postmarked not later than September 4 (Thursday), 1958 and sent to Dr. John F. Mueller, Department of Medicine, Cincinnati General Hospital, Cincinnati 29, Ohio.

(Abstracts may not be withdrawn after September 11.)

Eastern Section: The Annual Meeting will be held on Friday, December 12, and Saturday, December 13, 1958 in the auditorium of the Jimmy Fund Building, 35 Binney Street, Boston, Massachusetts. The meeting on December 12 will be from 9:00 A.M. to 5:00 P.M. and from 8:00 P.M. to 10:00 P.M. The meeting on December 13 will be from 9:00 A.M. to 12:00 Noon. Abstracts must be postmarked not later than October 20 (Monday), 1958 and sent to Dr. William B. Schwartz, New England Center Hospital, 171 Harrison Avenue, Boston 11, Massachusetts.

(Abstracts may not be withdrawn after October 27.)

Southern Section: The Annual Meeting will be held on Thursday, January 22, and Saturday,

January 24, 1959 in the Hotel Jung, New Orleans, Louisiana. The meeting on January 22 will be from 9:00 A.M. to 5:00 P.M. The meeting on January 24 will be from 9:00 A.M. to 12:00 Noon. Abstracts must be postmarked not later than November 3 (Monday), 1958 and sent to Dr. Ellard M. Yow, Baylor University College of Medicine, Texas Medical Center, Houston 25, Texas.

(Abstracts may not be withdrawn after November 10.)

Western Section: The Annual Meeting will be held on Wednesday, January 28, and Thursday, January 29, 1959 in the Golden Bough Theatre, Carmel, California. The meeting on January 28 will be from 1:30 P.M. to 5:30 P.M. The meeting on January 29 will be from 9:00 A.M. to 12:30 P.M. Headquarters will be at the LaPlaya Hotel. Abstracts must be postmarked not later than November 3 (Monday), 1958 and sent to Dr. Richard J. Havel, University of California Medical Center, San Francisco 22, California.

(Abstracts may not be withdrawn after November 10.)

Rules Applying to Abstracts

1. The title should be brief, with capitalization only of initial letters, and no capitals in prepositions, conjunctions, or articles. It should clearly indicate the nature of the investigation. It should be followed by the names and institutional affiliations (if no institution is involved, only the city should be given) of the authors. Authors' names should be underlined. Degrees, titles, institutional appointments, and membership status are omitted. Support of the work by a research grant will not ordinarily be mentioned.

The title and identifying material should be double spaced at the top of the first page of the abstract. A separate title page should not be used.

This model should be exactly followed:

**The Effect of Nitrate Ingestion on
the Ammonia Content of Hepatic
Venous Blood**

By John W. Throckmorton and Angus McBeth. Sixth Medical Service, City Hospital, West Pines, Georgia, and Department of Medicine, Busby Medical School.

2. The body of the abstract must not be longer than 300 words, organized in the following manner:

- (a) A brief statement of the purpose of the study (preferably one sentence).
- (b) A statement of the methods used.
- (c) A summary of the results obtained.
- (d) A statement of the conclusions reached.

It is not satisfactory to say, "The results will be discussed."

3. The text should be intelligible without reference to tables or graphs, which *cannot be published* in this journal.

4. The use of standard abbreviations (RBC, for example) is desirable. This journal uses Kg., Gm., mg., μ g., cc., L. (for liter), mEq., M. (for meter), and the per cent sign (%). A special or unusual abbreviation should be followed by a parenthetical explanation the first time it is used. Numerals, rather than words, should in general be used to indicate numbers, except in beginning sentences.

5. Each time the proprietary name of a drug is used in title or text, the first letter should be capitalized. Nonproprietary names should be written without capitals.

6. Abstracts, *including titles*, should be double spaced. The original and five copies must be submitted. The original should be on ordinary white bond paper; contrary to previous instructions, the copies should be on thin paper.

7. Each abstract must be accompanied by a covering letter giving the name, address, age and membership status of each of the authors and stating which author will present the paper. No one who has passed his forty-first birthday may present the paper.

8. One of the authors must be a member or the paper must be introduced by a member.

Action of the Council

At the meeting of the Council of the American Federation for Clinical Research held in Atlantic City on May 3, the following actions were taken: (1) The length of the abstracts for the national meeting was reduced from 300 to 250 words. This does not pertain to the section meetings. (2) The call for abstracts for the national meeting shall state that no paper will be accepted for presentation if it has been previously presented at any other national meeting. (3) Because of the increase in the number of abstracts submitted, a member of the Federation may in the future

either introduce or submit only one paper for the national meeting. He may, however, also be a co-author on a paper submitted by another member. (4) A committee was appointed to select a suitable successor for Dr. David T. Graham, the editor of *Clinical Research*, whose term expires May, 1959. (5) The process of approving new membership applications was simplified and the secretary-treasurer was empowered to act on all candidates who clearly meet the requirements. Doubtful applications will continue to be reviewed by five members of the council. (6) A committee was appointed to work with the American Society for Clinical Investigation on the meetings of the two organizations in 1959. (In the negotiations with the committee from the ASCI it was agreed that the 1959 meeting would take the same form as the 1958 meeting.) (7) A committee was appointed to obtain a permanent location for the national office of the Federation. The Federation's operation has become so complex in the past several years that it is impractical to move the office every three years with the election of a new secretary-treasurer. (8) In accordance with the constitution of the Federation the officers of the Federation were elected by the council. These were: Albert I. Mendeloff, president; William W. Stead, vice-president; George E. Schreiner, secretary-treasurer.

William W. Stead
Secretary-Treasurer

National Officers

At the May national meeting, Dr. Albert I. Mendeloff succeeded Dr. Ivan L. Bennett, Jr. as President of the Federation. Dr. William W. Stead became Vice-President and Dr. George Schreiner Secretary-Treasurer. Dr. S. Richardson Hill, Jr. was elected to the National Council.

Editorial Board

Dr. Arnold S. Relman and Dr. David E. Rogers are new members of the editorial board of *Clinical Research*, succeeding Dr. Mendeloff and Dr. John H. Moyer.

National Research Council

The American Federation for Clinical Research was unanimously approved for continued representation for the next three years in the National Research Council at the latter's annual meeting March 30-April 1, 1958. Ours is one of

the youngest societies represented, with membership derived largely from the ranks of developing medical scientists, and this endorsement of the Federation should point up its stature and be a source of pride to each of its members.

William J. Harrington
Representative to the
National Research
Council

Application for Membership

1. Young research workers are encouraged to apply for membership. It is unnecessary to await a member's invitation to join the AMERICAN FEDERATION FOR CLINICAL RESEARCH.

2. There is one requirement for regular membership: publication of a meritorious investigation in clinical medicine or allied sciences. This should not be a case report or an abstract.

3. An applicant must ask a member of the Federation who knows him to sign his application.

4. Interested individuals should write to: American Federation for Clinical Research, 250 West 57th Street, New York 19, N. Y.

New Research Tools

The information reported here is obtained from manufacturers. All notices and inquiries should be addressed to New Research Tools Editor, Samuel N. Turiel & Associates, Inc., 750 N. Michigan Ave., Chicago 11, Ill. Include name(s) of the manufacturer(s).

- Packaged set of radioactivity absorbers, consisting of 24 lead and aluminum discs, used with a detector and a scaler or count-rate meter. Nuclear-Chicago Corp.

- Mevalonic acid tagged with radiocarbon-14. Tracerlab, Inc.

- New detection unit for carbon counter which provides for analysis of a standard 2-inch diameter sample. Tracerlab, Inc.

- New model of instrument for analysis by gas and vapor chromatography, which handles samples of materials "that boil up to 475°C. and higher." Burrell Corp.

- Computing spirometer, which instantaneously computes MBC and TVC values. Colson Corp.

- Digital cardiometer, with linear scale pulse rate presentation "over a wide range" in both numerical and proportional form. Colson Corp.

• **Dynamic condenser electrometer** for measuring soft-beta emitting isotopes. Nuclear-Chicago Corp.

Obituaries

The National Office has been notified of the death of the following members:

Dr. Maurice Bruger, New York, New York
Dr. Robert Francis Dillon, River Forest, Ill.
Dr. Herbert L. Goodman, Detroit, Michigan

Dr. Jack D. Rosenbaum, Boston, Massachusetts.

ERRATUM

The name of the first author of the abstract "Metabolism of Tritiated Thymidine in Man," on p. 267 of the April 1958 issue, should be corrected to Joseph R. Rubini.

CURRENT COMMENT

The chairmen of the general meeting of the Federation, and of the section meetings sponsored jointly by the Federation and the American Society for Clinical Investigation, held in May of this year, were invited to submit comments on any aspects of their meetings which seemed to them worthy of note. We hope that their remarks will interest those readers who attended the meetings as well as those who did not, and that they will help carry out the function of *Clinical Research* as a medium for the expression of opinion.

General Meeting

Thirteen papers were presented before the general meeting of the Federation on the morning of May 4 in Atlantic City. The Steel Pier Theater was crowded throughout the meeting. Despite the large attendance, there was active and extensive discussion of the material presented, many questions were asked, and much additional information concerning each topic was brought up from the floor.

The papers were selected for the program on the basis of probable *general* interest, and abstracts describing specific and complex investigations of a highly specialized nature were, in large part, turned over to the chairmen of the sectional meetings. The enthusiastic reception of the program at the general session and the amount of discussion in response to the presentations raise considerable doubt about the validity of the argument that large gatherings stifle comments from the floor. It seems more likely that the decline in audience participation in recent years at the national meeting has resulted from the increasing specialization of the subject matter presented.

The sectional meetings during the afternoon and evening were well attended and participation in the discussion was active. It cannot be said that all went smoothly in every meeting, but, in general, the new program form was unusually successful. As more experience is gained with this type of meeting, particularly in the selection of papers appropriate for the general meeting and in the grouping of papers on related subjects in the sectional meetings, it can be expected that its great advantages will be exploited to the fullest extent.

Perhaps the most hopeful sign of all in the new program was the excellent cooperation between the Federation and the Society for Clinical Investigation that made the sectional meetings possible.

Ivan L. Bennett, Jr.
The Johns Hopkins Hospital
Baltimore, Maryland

Section I

Meeting under the joint sponsorship of the American Federation for Clinical Research and the American Society for Clinical Investigation, Section I convened first on Sunday afternoon, May 4, 1958 in the large Steel Pier Theater. Although the attendance was good for a sectional meeting, the size of the theater seemed somewhat overwhelming. It was the opinion of the chairman that it tended to discourage intimate discussion of the interesting papers presented during the afternoon session.

The first five papers of the afternoon dealt with problems of research in the field of respiration. The first two, presented by groups from Detroit and Boston, dealt with the measurement of pulmonary diffusion capacity, a topic cur-

rently of considerable interest in the respiratory field. Additional papers were presented on the free collapse of the human lung, a study of the hypercapnea of emphysema and the effects of rheumatoid spondylitis on respiration.

Following this there were two papers from New Orleans and St. Louis dealing with the basic studies on the use of radioactive rubidium for the estimation of coronary blood flow. Such studies suggest that not only would this be a useful method for measuring coronary blood flow in experimental animals, but perhaps eventually in human subjects as well, without the complication of coronary sinus catheterization. The authors were conservative in their conclusions, and one carried away the feeling that this method was subject to considerable variability which required further study. The direct application to patients appeared to be some distance in the future. The afternoon session was concluded by papers on coronary blood flow in normal men and women and a study of the effect of molar sodium lactate on the cardiotoxic effect of quinidine. The former paper demonstrated a striking difference in coronary hemodynamics between the sexes. There was considerable discussion.

The evening session was held in the Carolina Room of the Chalfonte Hotel. Although there had been some expression of mixed feeling as to the advisability of evening sessions, the attendance was large and enthusiastic, there being few empty chairs at any time. The room seemed more suited to discussion and this certainly proved to be the case. The first paper was presented by Dr. Carleton Chapman on left ventricular function as evaluated by cinefluorographic method. Following this, there were three papers dealing with the use of dye dilution curves in detecting the presence and amount of valvular regurgitation. The first, from London, was concerned primarily about studies on a mechanical model. The second, from Syracuse, dealt with animal experimentation, and the final paper, from Salt Lake City, considered the problems in human subjects. There was extensive discussion which resulted in a small symposium on dye dilution curves. Professor John McMichael of London was present and discussed some of the ideas emanating from his institution. Although our understanding of the nature of these curves is increasing, it appeared to the chairman that we have a much more complicated system than originally supposed and that we are only beginning to ap-

preciate the multitudinous factors that contribute to the contour of the dye injection curve. The meeting was concluded by two papers on the size of ventricular septal defects and the study of vascular hyper-responsiveness in arterial hypertension.

It seemed to the chairman that the sectional type meeting was quite successful. At the evening session particularly, the room, the papers and the personalities reacted in just the right fashion to produce an enthusiastically received meeting.

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Section II

The large number of excellent abstracts submitted by members of both societies in the broad field of metabolism and endocrinology made selection of 15 papers a pleasant though difficult task. While merit served as the prime standard, attempt was made to secure diversity of interest and to provide material that would stimulate discussion. Both the afternoon and evening sessions were very well attended, the Viking Room proving too small for the evening meeting, and the audience provided excellent discussion.

The failure of aldosterone to maintain sodium retention was shown by Nelson to involve factors other than tolerance, increase in filtration rate and volume changes. Vigorous discussion of this material brought out the complexity of influences on sodium reabsorption.

Henneman advanced the interesting hypothesis that the presence of a persistently acid urine could be responsible for uric acid stone formation in patients without abnormal concentration of serum or urinary uric acid, and he advanced data to indicate that impairment of tubular ammonia secretion might be the significant metabolic abnormality. Among the several discussants, Sirota made the most searching query concerning the possibility that the impairment of ammonia secretion was due to renal damage.

Mueller presented data on blood and urine citric acid in control subjects and patients with metastatic carcinoma before and after the administration of corticoid therapy. The elevated levels in metastatic cancer could be attributed to neither delay in removal nor increased production by the tumor, but might be the result of

bone or hepatic involvement. Dorothy Henneman commented on her studies which indicated that the decreased blood and urine citric acid levels following cortisone therapy were due to decreased production of citric acid.

Eisenberg and his associates presented extremely interesting data on the use of nonradioactive strontium as a measure of rates of osteogenesis and made the interesting observation that the seemingly beneficial effects of androgen and estrogen in senile osteoporosis were related to changes in renal excretion of lime salts rather than movement of calcium and phosphorus into bone.

Furman presented data on the effects of diet and androgen administration on blood lipid levels, demonstrating the most marked cholesterol depression on a protein-free diet, and noted that in the absence of dietary protein, methyl testosterone led to even further reduction in serum lipids without any fall in alpha/beta lipoprotein ratio. It was also noteworthy that no creatinuria occurred in patients given methyl testosterone while on a low protein diet. The discussion following this paper brought out many points, one of the more important being the possibility that deficiency of essential amino acids might be responsible for these changes.

Two excellent papers involved hypothalamic control of thyroid function. Blanquet showed that destruction of the median eminence by a focused beam of high energy particles dissociated thyroid function in the sense that radioiodine uptake was not decreased, whereas thyroxine content of the thyroid gland dropped to very low levels. Bakke studied thyrotropin concentration and content in the rat pituitary under conditions designed to increase TSH activity. Initially, there was a drop in TSH concentration, apparently the result of rapid release, but then TSH concentration progressively increased. It was also of interest that the test animal developed progressive exophthalmos in the long-term study.

Carr presented data which clarify the perplexing problem of crossover of the placental barrier by thyroid hormone. From his studies it seems apparent that there is some transfer of thyroxine across the placenta, but that adequate transfer requires high levels of maternal hormone. This paper, and the discussion which followed, offered further evidence that the great majority of cretins undoubtedly develop the disease *in utero* and that treatment after birth rarely results

in restoration of normalcy. Data were presented to suggest that high dosage of thyroid during pregnancy could prevent the development of cretinism.

The final paper on the afternoon program by Waldmann summarized studies and data from the literature dealing with the idiopathic hypoalbuminemic syndromes which were divided into the hypercatabolic and anabolic types.

The evening program began with a very interesting paper by Hollander dealing with sensitivity of isocitric dehydrogenase to estradiol in human breast cancer. This technic shows promise as a method for determining by *in vitro* study of malignant tissue the type of hormonal therapy or glandular ablation that seems desirable.

Leach advanced data to suggest that norethandrolone would effect gonadotropin suppression without androgenic or estrogenic activity. This controversial paper led to a very spirited discussion in which the theories of androgenic-anabolic dissociation were attacked and in which the consensus seemed to hold that dose response effects were dominant in gonadotropic suppression.

Freinkel presented data on the metabolism of insulin by human placental tissue which not only offered an extremely interesting methodologic approach but demonstrated that the placenta is still another tissue which may inactivate insulin. The clinical implications of this study are obviously very important.

The paper by Laster suggested another pathway of uric acid metabolism as well as a possible link between therapeutic effectiveness of certain drugs and uric acid riboside phosphorylase inhibition. Discussion, led by Wyngaarden, raised the important points that the doses of colchicine effective in such inhibition were far in excess of those therapeutically effective in gout and that this phosphorylase is not present in human erythrocytes.

The paper of Amatrudda dealing with the steroid withdrawal syndrome was of great interest and promoted extremely interesting discussion. From this paper it is apparent that many of the symptoms which follow steroid withdrawal are not secondary to decreased production of adrenal corticoids. It led to a discussion, in which no firm answers could be given, regarding methods of determining which patients should be treated during stress after prolonged corticoid therapy.

The last paper of the evening session involved study of protein anabolism in potassium deficiency. Herndon showed that large amounts of nitrogen could be retained despite potassium depletion.

Although the Chairman has not been entirely sympathetic with the demand for specialized section meetings, the plethora of superb abstracts, the value derived from hearing a number of papers which would not otherwise be on the program and, most particularly, the opportunity to create an environment for adequate give-and-take discussion, has effected his complete conversion regarding the need for, and value of, section meetings of this type.

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Section III

The large number of abstracts submitted to the subsection chairman, and the overflow crowd which filled the Viking Room for most of the afternoon and evening sessions, demonstrated that "kidney and electrolytes" continues to be a field of major interest to clinical investigators.

Currently, one of the most active areas for research is the problem of the mechanism by which the urine becomes concentrated or diluted. Conceptual horizons have been considerably broadened by recent work of several laboratories, most notably that from Berliner and his associates in Bethesda, DelGrecco and De Wardener in London, Gottschalk in Chapel Hill and Wirz in Basle. While no definitive conclusions can yet be drawn, it seems clear from these studies that factors other than vasopressin play an important role. These factors include the rate of glomerular filtration, the osmotic load presented to the distal nephron and the integrity of the "sodium pump," which is probably ultimately responsible for the establishment of osmotic gradients. The first three papers of the afternoon session provided interesting information concerning this subject. W. D. Blake of Portland reported that reduction of blood flow (and GFR) to one entire kidney by partial occlusion of the main artery always increased the osmotic pressure of the urine, but complete cessation of flow to a portion of the kidney, induced by clamping a branch of the renal artery, resulted in *reduction* in osmotic pressure of the urine when the control samples

were hypertonic. These observations emphasize that investigators must be cautious in interpreting net reductions in blood flow and filtration rate.

L. G. Raisz, W. Y. W. Au and R. L. Scheer of Syracuse reported that net water reabsorption in dehydrated subjects, infused with vasopressin and osmotic loads of mannitol and urea, tended to increase with increasing osmotic load. With extremely high loads reabsorption of "free" water began to decrease again. These observations underline the importance of osmotic load, even in the presence of steady infusions of vasopressin, in determining the concentrating function of the kidney.

Finally, H. P. Schedl and F. C. Bartter of Bethesda presented a report suggesting that the defect in diluting ability manifested by cirrhotics can be overcome by increasing the osmotic load presented to the kidneys. They postulate that osmotic loading increases the delivery of sodium and water to distal sites in the nephron where "free" water can be generated. Increased proximal reabsorption of glomerular filtrate rather than excessive or persistent vasopressin activity is therefore suggested as the main defect responsible for the disturbance in water excretion in liver disease.

The role of tissue buffers in the adjustments to respiratory acidosis in the rat was pointed out by the two following reports, one from New Haven (H. Levitin, C. R. Jockers and F. H. Epstein), and the other from Dallas (N. W. Carter, D. W. Seldin and H. C. Teng). Both groups found small reductions in muscle potassium and the Dallas workers also noted reduction in muscle sodium. These were interpreted to mean that tissue buffers are capable of buffering carbonic acid as well as stronger acids. The New Haven group found no significant change in bone sodium or potassium. Previous observations by F. H. Epstein and associates on the renal response to respiratory acidosis in the rat were confirmed by the Dallas workers who reported that urine ammonia and chloride excretion were initially increased by the hypercapnea. The reduction in plasma chloride was shown to be due in part to renal excretion. Despite profound acidosis, and despite the changes in ammonia excretion and bicarbonate reabsorption, the Dallas workers found no change in renal glutaminase or carbonic anhydrase activity.

O. Wrong and E. F. Davies of Manchester,

England presented an interesting study of the excretion of acid in renal disease. In confirmation of the work of earlier investigators, it was reported that patients with severe renal disease without evidence of so-called "renal tubular acidosis" could usually excrete an acid urine when stimulated with ammonium chloride, even when they were clinically uremic and acidotic. The rate of ammonium excretion was invariably depressed in severe renal failure and could be correlated with the glomerular filtration rate. In renal tubular acidosis impairment of acidification appears to be the rule, and it could not be stated whether reduction in ammonium excretion is due to failure of acidification, to reduced glomerular filtration or to a specific tubular defect.

E. D. Pellegrino and S. J. Farber of New York reported the results of their extensive study of human bone electrolytes in various disease states. The average values of the major electrolytes of tibial human bone obtained at autopsy were found to be remarkably constant in a wide variety of diseases, even when serum electrolyte values were grossly disturbed. Bone sodium was slightly reduced in severe metabolic acidosis. These are somewhat sobering data which, if confirmed, would require a re-evaluation of commonly held concepts about the physiological "availability" of bone electrolytes in man.

E. E. Muirhead and J. A. Stirman of Dallas presented studies bearing on the mechanism of the anemia associated with renal disease. They demonstrated that in dogs an intracorporeal defect appears to develop rapidly following nephrectomy, leading to accelerated hemolysis. Uremia produced by ureterocaval anastomosis was not associated with this disorder, indicating that some nonexcretory renal function may be necessary for prevention of the development of the cellular defect. Such studies as this are much needed to clarify this complex problem. The answer to the anemia of uremia apparently is not going to be simple, however, and there is now evidence to indicate erythropoietic defects, humoral hemolytic mechanisms, as well as a corporeal defect.

The last paper of the afternoon session was a study by G. W. Welsh and E. A. H. Sims of Burlington, Vermont of the mechanism of glucosuria in pregnancy. These workers showed clearly that renal glucosuria can be due either to an increase in glomerular filtration rate or to a reduction in the tubular capacity for glucose

reabsorption. In many ways these changes resemble those produced by adrenal corticoids.

In the evening session, A. P. Shapiro of Pittsburgh presented some of his further studies on experimental chronic pyelonephritis in rats. He reported that hypertensive vascular disease does not develop in these animals even after one year of continuous infection, and despite progressive renal damage. To explain the clinical coincidence of hypertension in human pyelonephritis, therefore, the author undertook to assess the susceptibility to renal infections of rats made hypertensive with DOCA and salt. Such animals proved to develop renal infection after *E. coli* inoculation significantly more frequently than normotensive controls. The tentative conclusion drawn was that the human correlation between hypertension and pyelonephritis may be a matter of enhanced susceptibility rather than cause and effect.

L. H. Maffly and A. Leaf of Boston presented their data on the osmolality of tissues using a newly developed melting point technic which appears to have many theoretical advantages over previous methods. Their data show clearly that the osmolality "or more correctly, the water activity" within cells is the same as that of extracellular fluid. This well-conceived study would appear to go far towards settling the long-debated question of osmotic gradients across the cell membrane.

E. R. Borun and S. Perry, Los Angeles, presented very interesting data concerning differences in the rate of potassium exchange in erythrocytes of different ages, the older cells apparently equilibrating more rapidly than the younger ones. Equilibration rates per unit cell, however, were similar and the difference is explained by variations in water and potassium content. These data would appear to provide a satisfactory explanation for earlier observations of rapidly and slowly exchanging fractions of red cell potassium.

An elegant study of the electrical potential developed by the large intestine was presented by I. L. Cooperstein and S. K. Brockman from Bethesda. A stable potential of 10 to 40 millivolts (lumen negative) was observed across the dog's bowel. Active transport of sodium from lumen to blood against an electrochemical potential, plus active inward transport of bicarbonate ion, appeared to be the primary sources of this potential difference. Potassium and chloride

movements were along electrochemical potentials. Thus, once again we have evidence of active transport of sodium apparently acting as the key process in a system involving simultaneous movements of many other ions.

The final paper of the evening on the "Effects of Calcium on Urine-Concentrating Ability" was presented by J. Grossman, M. F. Mines, A. G. Goldman and M. Wolfman of New York City. These workers presented evidence, which has been independently corroborated by a number of other laboratories, that administration of calcium has some specific inhibitory effect on renal tubular reabsorption of free water. The polyuria associated with various clinical hypercalcemic states is quite probably related to this phenomenon, but no precise mechanism has yet been elucidated.

After listening to sessions such as these, and after reading the abstracts submitted, it is difficult to obtain any single impression about the direction of current interests in this complex field. One clearly evident trend, however, is the increasing interest in the physical and chemical basis of electrolyte physiology. As in so many other areas of biology, investigators are turning more and more to the molecular phenomena of the cell and the cell membrane to provide explanations of physiologic and clinical events. Similarly, studies in renal physiology seem to be moving in the direction of more and more precise localization of molecular events in particular parts of the nephron. In this connection, renewed interest in micropuncture technics is now being manifested. One may well expect that significant advances in our knowledge of renal physiology will once again come from further exploitation and refinements of the methods first developed by A. N. Richards and his colleagues.

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Section IV

The meeting of the hematology section was held in the Carolina Room of Hotel Chalfonte from 2:30 to 5:30 P.M., Sunday, May 4, 1958. About 600 to 700 persons attended, and 35 members of the audience participated in lively discussion of the 8 papers presented. One person had been asked in advance to initiate the discussion of each paper, but all discussants were asked to limit their remarks to 3 minutes and to avoid presentation of second papers. Three of the

papers were selected from abstracts submitted to the American Federation for Clinical Research and 5 from abstracts submitted to the American Society for Clinical Investigation.

Gardner, Aas, Cohen and Pringle of Boston reported observations on blood platelets tagged with $\text{Na}_2\text{Cr}^{51}\text{O}_4$ in 51 patients with a variety of hematologic disorders. Body surface-counting over spleen, liver and lungs failed to reveal sites of platelet sequestration in any case. Normal life span of both isologous and autologous-tagged platelets helped to exclude an immune mechanism in several cases of chronic idiopathic thrombocytopenia. Normal survival of tagged platelets in congestive splenomegaly suggested that thrombocytopenia was due to inhibition of platelet production rather than peripheral destruction associated with splenic sequestration. In discussing this paper, Reisner of New York reported general agreement with these results except in the group with congestive splenomegaly.

Athens, Mauer, Ashenbrucker and Cartwright of Salt Lake City presented several possible models for granulocyte kinetics based on studies with DF^{P32} -labelled leukocytes. There was no evidence of reutilization or elution of the label or of removal from circulation of cells damaged by the label. Craddock of UCLA and Pollycove of Berkeley were in general agreement.

Bloom, Shulman and Witebsky of Buffalo described anticomplementary activity (ACA) of serum as a common finding in multiple myeloma. In one case ACA was detected 17 years before myeloma became apparent. Heating of serum at 55 to 65°C. potentiates ACA. Identification of a protein fraction responsible for ACA in myeloma has not been accomplished.

Linman of Chicago presented data on normal rats given 20 daily injections of batyl alcohol which produced reticulocytosis, erythrocytosis, thrombocytosis and marrow hyperplasia. The newly formed red cells were microcytic and showed increased osmotic fragility. There was no increase in hemoglobin or hematocrit. Batyl alcohol has been isolated from bone marrow and is thought by Linman to be closely related to the thermostable factor present in plasma which is capable of accelerating erythroblastic cellular division. Crosby of Washington, D.C. and Dame-shak of Boston pointed out, however, that the results described could be attributed to a hemolytic effect of the alcohol.

Jandl of Boston reported that reticulocytes

from several species of animals exhibited properties similar to those of antibody-coated red cells. They were selectively agglutinated by anti-globulin sera and were readily sequestered in the splenic pulp, but there was no evidence of destruction of reticulocytes in the spleen as a result of sequestration. Reticulocytes and various types of abnormal human red cells were subjected to filtration through Millipore filters with a pore size of 5.5 microns and at various pressures. Sickled cells and spherocytes were readily separated from normal red cells which passed through the pores more easily. Reticulocytes and antibody-coated cells suspended in plasma + PVP fibrinogen passed through the filter only when pressures above 8 to 10 mm. Hg were applied to dissociate the cell aggregates. Still higher pressures were required to force through the filter red cells agglutinated by "complete" antibodies. Jandl concluded that sites of sequestration of immature, abnormal or agglutinated red cells may be determined chiefly by pore size and perfusion pressures of vascular filter beds in various parts of the body, such as spleen and liver.

Griggs and Harris of Cleveland demonstrated shortened survival of autotransfused red cells tagged with Cr⁵¹ in 4 adult males who suffered lead intoxication from industrial exposure. Further studies on persons with a history of exposure to lead revealed increased excretion of delta-aminolevulinic acid in the urine even when the excretion of coproporphyrin was normal. These results point to a sensitive test to aid in detection of lead intoxication. In discussing this paper, Cartwright of Salt Lake City expressed the opinion that a block in incorporation of Fe in protoporphyrin might explain all of the known biochemical abnormalities in lead poisoning.

Schrier and Kellermeyer of Chicago found increase in aldolase activity in hemolysates prepared from 10 primaquine-sensitive persons as compared with those from 13 normal persons. They postulate that the primaquine-sensitive red cells with genetically determined deficiency in glucose-6-phosphate dehydrogenase could utilize energy sources of anaerobic glycolysis more effectively with the aid of increased aldolase. Normal life span of the cells could thus be maintained unless the cells were challenged by primaquine or a related drug.

Thomas, Lochte, Jaretzki, Ashley and Sahler of Cooperstown reported studies with homografts of bone marrow in dogs after lethal total-

body radiation. Resistance to grafts was overcome by increasing dose of radiation beyond LD₁₀₀ range, by splenectomizing recipients and giving ACTH before radiation and by giving large doses of marrow. Successful grafts were demonstrated by return to peripheral blood of all three formed elements and by an appearance of female leukocytes in male dogs that received marrow from female donors. Donor red cells might be identified on the basis of blood group differences. The chief cause of death in the radiated dogs is infection due to loss of immune responses. Transplantation of splenic tissue from both adult and fetal donors is being tried as a means of re-establishing resistance to infection.

There was general agreement among the numerous discussants of this paper with regard to technical difficulties involved in any type of marrow transplant.

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Section V

There was a good attendance at the meeting of the subsection on infectious diseases where 8 papers were presented and discussed. The experience of the audience spanned the last thirty years in this field. This vast knowledge was reflected in the discussion. The subject matter presented varied from the social aspects of infectious diseases to considerations of molecular activity.

Christensen presented the experience of the Cornell group in their study of a group of Hungarian refugees. He emphasized the relationship of life experiences to illness. The discussion was active, provocative and particularly stimulating in the area of experimental design. There was considerable comment on the dangers of the use of anamnesis in studies of this type. The discussants pointed out the complicated interrelationship of environmental sanitation, diet and stress in the pathogenesis of infectious diseases. The paper and discussion points to a large field for future study in infectious diseases and the need for critical judgement and protocol in order to prevent a repetition of the errors of the late nineteenth and early twentieth century when bacteria were being established as etiologic agents of disease.

Other papers dealt with hormones and susceptibility, latent infections, cross resistance and passive immunity. Immunologic mechanisms in

fever production were discussed. The experiences of McCrumb and the Maryland group in the recent Asian influenza epidemic were presented and the findings were discussed and compared with those of Dingle of Western Reserve and Rogers of Cornell. All papers stressed the importance of host response in infectious diseases.

Dr. Alexis Shelokov presented his findings of hemadsorption in tissue culture. This technic will aid immeasurably in the study of viral diseases.

While the discussion was lively and critical, it is hoped that in future years the analysis of the papers will become more detailed and piercing. In this day of rapid fire presentation of papers, critical evaluation has become a lost art. With the discussion period lasting as long as the presentation, this art may be rejuvenated and again become a part of the medical scientific meetings.

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Section VI

Section VI met in the West Room at Haddon Hall at 2:30 P.M., Sunday, May 4, 1958. An audience of 225 packed the hall to capacity. Nine papers were presented, five submitted to the American Federation for Clinical Research and four to the American Society of Clinical Investigation. The first four papers dealt with liver disease and bilirubin metabolism. The quality of these presentations was of a very superior grade, and the discussion was led by a group of eminent investigators in these fields who came to this meeting of their own accord. The discussion was lively, crisp and designed to be informative.

The remainder of the program dealt more strictly with the gastrointestinal tract. The presentations were somewhat variable in quality, but I believe all but one were superior. Discussion was generally good, and never verbose. The meeting ended at 5:00 P.M.

This meeting proved that tandem discussion is certainly preferable to discussions in which the essayist tabulates a list of questions from various people before answering any one of them. It was also clearly shown that ten minutes is more than ample time in which to extract in discussion the meat of a ten-minute paper, since

it is safe to say that the first five minutes of the discussion period contained all the really important questioning. From the standpoint of the chairman, this meeting proved to be a pleasure in all respects.

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Baltimore, Maryland

Section VII

The central theme of the Section VII meeting was "the role of research in undergraduate medical education." Abstracts were submitted through regular channels and selected for presentation in the usual fashion. However, most of the papers were solicited by the chairman in an attempt to contain the subjects for discussion within some easily encompassable framework. Most of the presentations were excellent and reflected the critical approach of several medical schools to the problems of medical student research. Data were presented which had been carefully collected and analyzed. Although it was obvious that better methods of evaluation are required, certain patterns emerged that to my eye were strikingly similar for schools with very different traditions.

It is now abundantly clear that the last decade has seen a spontaneous upsurge of research interest among medical students throughout the country. Whether we like it or not, research is a part of the medical curriculum because of student demand. Therefore, the vast majority of students at Yale gladly accept the thesis requirement for the M.D. degree (Ebbert), and the Albany Medical College has more applicants for summer research scholarships than can be supported (Nelson). Harvard has used a tutorial system to stimulate interest in research and waives certain required clinical courses to provide additional time for original investigation (Villev). N.Y.U. has developed an extremely ambitious "honors program" to attract better students for academic careers. Although too early to evaluate, the N.Y.U. program has been a great success if judged by faculty enthusiasm (Stetson). Rochester has made the most careful analysis of the careers of its former student research fellows and the motivations which led them to interrupt their regular medical training for a period of basic science training (Fenninger).

In all fairness it should be stated that the symposium was not an unqualified success be-

cause the habit of doing research on research is not yet firmly ingrained. But a promising start has been made. The discussions were spirited and indicated that the many members and guests of the two societies who attended the meeting wanted additional data on which to base their opinions. A time may come, hopefully, when members of the audience whose papers were not selected for presentation at the medical education subsection will "happen" to have a few slides in their pockets.

Should the American Federation for Clinical Research and the American Society for Clinical Investigation continue to sponsor these meetings on medical education? I believe it is their responsibility to do so. However, as scientific societies they should demand that these symposia be based on factual data submitted for critical examination in the same spirit as other scientific papers. If such a standard could be set, it would be of inestimable value to medical education. At present, most discussions of medical education are

based on hearsay, fraught with preconceptions and conducted on the unscientific plane of authoritarian debate. The scientist, outside of his own little bailiwick, is usually the worst offender. Contrary to lay (scientific) opinion, there are data available on many aspects of medical education that are crying for critical analysis and that are often of considerable import to the clinical investigator and teacher. The quality of candidates seeking admission to medical schools, for example, is a subject for a symposium which bears directly on the future of scientific medicine. If the clinical investigator forfeits his right to appraise medical education, it would (and should) go to the administrator by default. We have our precious "academic freedom" only to the extent to which we accept our "academic responsibility."

Robert R. Wagner

Johns Hopkins University School of Medicine
Baltimore, Maryland

1958 Membership Roster

of the

American Federation for Clinical Research

No Asterisk—Regular Member

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